ENVIRONMENTAL ASSESSMENT

Issuance of Incidental Harassment Authorizations to the Gulf of the Farallones National Marine Sanctuary and University of California Santa Cruz to Take Marine Mammals by Harassment Incidental to Rocky Intertidal Monitoring along the U.S. Pacific Coast

October 2012

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LOCATION:
Intertidal areas along the Oregon and California coasts and islands

ABSTRACT:
The National Marine Fisheries Service (NMFS) proposes to issue Incidental Harassment Authorizations to the Gulf of the Farallones National Marine Sanctuary and University of California Santa Cruz for the taking, by Level B harassment, of small numbers of marine mammals, incidental to rocky intertidal monitoring programs along the U.S. Pacific coast.

CONTENTS

LIST OF ACRONYMS, ABBREVIATIONS, AND INITIALISMS

CFR	Code of Federal Regulations
CEQ	President's Council on Environmental Quality
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FR	Federal Register
GFNMS	Gulf of the Farallones National Marine Sanctuary
IHA	Incidental Harassment Authorization
MMPA	Marine Mammal Protection Act
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OMB	Office of Management and Budget
PISCO	Partnership for Interdisciplinary Study of Coastal Oceans
UCSC	University of California Santa Cruz
U.S.C.	United States Code
U.S.	United States
USFWS	U.S. Fish and Wildlife Service

1. CHAPTER 1 – PURPOSE AND NEED FOR ACTION

1.1 DESCRIPTION OF PROPOSED ACTION

The National Marine Fisheries Service (NMFS) has received one application from the National Oceanic and Atmospheric Administration's (NOAA) National Ocean Service's Gulf of the Farallones National Marine Sanctuary (GFNMS) and one application from the University of California Santa Cruz's (UCSC) Partnership for Interdisciplinary Study of Coastal Oceans (PISCO) for Incidental Harassment Authorizations (IHAs) to take marine mammals, by Level B harassment only, incidental to conducting rocky intertidal monitoring (for abalone) along the U.S. Pacific coast.

GFNMS proposes to continue rocky intertidal monitoring in areas previously unexplored for black abalone for periods of four to eight days in November and February, which is a continuation of a long-term study that began in 1992, and, at present, is anticipated to continue for several years. Sampling sites are located along the South Farallon Islands, California, which are situated inside the boundaries of NOAA's Gulf of the Farallones National Marine Sanctuary.

PISCO conducts ongoing rocky intertidal monitoring along the U.S. Pacific coast, with monitoring occurring at rocky intertidal sites, often large bedrock benches, from the high intertidal to the water's edge. All sites are located along the Oregon and California coasts. Sites are sampled throughout the year, with most sites sampled one to three times per year over a one day period per site.

GFNMS' and PISCO's activities, which have the potential to behaviorally disturb marine mammals, warrant issuance of incidental take authorizations from NMFS under section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1631 *et seq*.).

The proposed action considered in this Environmental Assessment (EA) is NMFS' issuance of two separate one-year IHAs under section 101(a)(5)(D) of the MMPA, for the taking, by Level B harassment only, of small numbers of marine mammals incidental to the rocky intertidal monitoring surveys. More specifically, this EA, titled "*Issuance of Incidental Harassment Authorizations to the Gulf of the Farallones National Marine Sanctuary and University of California Santa Cruz to Take Marine Mammals by Harassment Incidental to Rocky Intertidal Monitoring along the U.S. Pacific Coast*" (hereinafter, EA), addresses the impacts on the human environment that would result from issuance of these IHAs for MMPA Level B takes of marine mammals during the monitoring surveys, taking into account the mitigation measures required in the IHA.

1.1.1 MMPA PURPOSE AND NEED

The MMPA and Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq*.) prohibit "takes" of marine mammals and of threatened and endangered species, respectively, with only a few specific exceptions. The applicable exceptions in this case are an exemption for incidental take of marine mammals in section 101(a)(5)(D) of the MMPA.

Section 101(a)(5)(D) of the MMPA directs the Secretary of Commerce to authorize, upon request, the incidental, but not intentional, taking of small numbers of marine mammals, by United States (U.S.) citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and a notice of a proposed authorization is provided to the public for review. Section 101(a)(5)(D) of the MMPA establishes a 45-day time limit for NMFS' review of an application for an IHA followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the public comment period, NMFS must either issue or deny the IHA.

Purpose: The primary purpose of NMFS issuing IHAs to the GFNMS and PISCO is to provide an exemption from the take prohibitions contained in the MMPA for the take of marine mammals incidental to the rocky intertidal monitoring surveys.

Need: As noted above, the MMPA establishes a general moratorium or prohibition on the take of marine mammals, including take by behavioral harassment. The MMPA establishes a process by which individuals engaged in specified activities within a specified geographic area may request an IHA. Specifically, NMFS shall grant the IHA if it finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). The IHA must set forth the permissible methods of taking, other means of effecting the least practicable impact on the species or stock and its habitat, and requirements pertaining to the mitigation, monitoring, and reporting of such takings.

The GFNMS and PISCO each submitted a complete application demonstrating potential eligibility for issuance of separate IHAs. NMFS now has a corresponding duty to determine whether and how it can fashion two separate IHAs authorizing take by harassment incidental to the activities described in the applications. The need for this action is, therefore, established and framed by the MMPA and NMFS' responsibilities under section 101(a)(5)(D) of that Act, its implementing regulations, and other applicable requirements which will influence its decision making, such as section 7 of the ESA, which is discussed in more detail below this section.

The foregoing purpose and need guide NMFS in developing reasonable alternatives for consideration, including alternative means of mitigating potential adverse effects.

1.2 NEPA Requirements and Scope of NEPA Analysis

This EA focuses primarily on the environmental effects of authorizing MMPA Level B incidental takes of marine mammals during rocky intertidal monitoring surveys along the U.S. Pacific coast. The MMPA and its implementing regulations governing issuance of an IHA require that upon receipt of an adequate and complete application for an IHA, NMFS must publish a notice of proposed IHA in the *Federal Register* within 45 days. The notice for the GFNMS' proposed action (77 FR 50990, August 23, 2012) summarized the purpose of the requested IHA, included a statement that NMFS would prepare an EA for the proposed action, and invited interested parties to submit written comments concerning the application and NMFS' preliminary analyses and findings including those relevant for consideration in the EA. The notice for PISCO's proposed action (77 FR 64320, October 19, 2012) summarized the purpose of

the requested IHA, included a statement that NMFS would prepare an EA for the proposed action, and invited interested parties to submit written comments concerning the application and NMFS' preliminary analyses and findings including those relevant for consideration in the EA. The notices were available for public review and comment for 30 days each.

NMFS has determined that given the timing, geographic locations, and similarity of the activities and resources potentially affected that it is reasonable and appropriate to evaluate the effects of the two separate IHAs in a single EA. Therefore, the effects of both actions are evaluated within the scope of this document. While activities by the two separate entities would overlap temporally twice during the year (i.e., November and February), both entities would survey separate sites, with no spatial overlap.

NOAA Administrative Order 216-6 (NAO 216-6) established agency procedures for complying with the National Environmental Policy Act (NEPA) and the implementing regulations issued by the President's Council on Environmental Quality (CEQ). Consistent with the intent of NEPA and the clear direction in NAO 216-6 to involve the public in NEPA decision-making, NMFS requested comments on the potential environmental impacts described in the MMPA applications and the proposed IHAs. Comments received on the proposed IHAs were considered and informed this EA. The commenters requested that NMFS include any proposed mitigation and monitoring measures into any issued IHA.

NMFS has prepared this EA to assist in determining whether the direct, indirect, and cumulative impacts related to its issuance of the authorizations for incidental take under the MMPA of five marine mammal species are likely to result in significant impacts to the human environment. Given the limited scope of the decision for which NMFS is responsible (i.e., whether or not to issue the authorization including prescribed means of take, mitigation measures, and monitoring requirements) and that this EA is intended to inform, we have limited our NEPA analysis only to those living marine resources and their habitat likely to be affected by issuance of the IHAs authorizing the take of marine mammals incidental to the GFNMS' and PISCO's activities. Impacts to the social and economic environment are not implicated by NMFS' proposed action of authorizing take of marine mammals. Additionally, there are no relevant subsistence uses of marine mammals in the proposed action area; therefore, issuance of separate IHAs to GFNMS and PISCO would have no effects on subsistence uses of marine mammals. As described more fully below, the EA identifies all marine mammals that are likely to occur within the action areas.

This EA focuses on the environmental impacts that could result from NMFS' decision to authorize the take of marine mammal species incidental to the rocky intertidal monitoring surveys. We have also described the impacts that could arise from the alternatives presented. Impacts to other marine species and habitat located in the action area were considered unlikely, and thus received less detailed evaluation.

1.3 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS

This section summarizes Federal, state, and local permits, licenses, approvals, and consultation requirements necessary to implement the proposed action.

1.3.1 THE NATIONAL ENVIRONMENTAL POLICY ACT

NEPA's Environmental Impact Statement (EIS) requirement is applicable to all "major" Federal actions significantly affecting the quality of the human environment. Major Federal actions include activities that are fully or partially funded, regulated, conducted, or approved by a Federal agency. NMFS' issuance of an IHA for incidental harassment of marine mammals is a major Federal action for which environmental review is required under the CEQ regulations. While NEPA does not dictate a substantive outcome for an IHA, it requires consideration of environmental issues in Federal agency planning and decision making and requires an analysis of alternatives and direct, indirect, and cumulative environmental effects of the NMFS proposed action and alternatives to authorize MMPA Level B incidental take. It also calls for the identification and consideration of reasonable mitigation measures to avoid, minimize, off-set, or compensate for potential adverse effects. As noted, NMFS has prepared this EA to assist in determining whether or not the proposed action would cause significant effects.

1.3.2 THE ENDANGERED SPECIES ACT

Section 7 of the ESA requires consultation with the appropriate Federal agency (either NMFS or the USFWS, depending on the species) for Federal actions that "may affect" a species listed as threatened or endangered or critical habitat designated for such species. NMFS' issuance of an IHA affecting ESA-listed species or designated critical habitat, directly or indirectly, is a Federal action subject to these section 7 consultation requirements. Accordingly, NMFS is required to ensure that its action is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat for such species. Regulations specify the requirements for these consultations (50 CFR § 402).

The GFNMS' action may affect the eastern distinct population segment of Steller sea lion, which is listed as threatened under the ESA. NMFS' Office of Protected Resources Permits and Conservation Division initiated formal section 7 consultation with the NMFS Southwest Regional Office. PISCO will not conduct activities if Steller sea lions are present at a sampling site, and take of this species is not proposed to be authorized in the PISCO IHA. Therefore, the action is not likely to adversely affect any listed species, and formal consultation for this action is not required.

1.3.3 THE MARINE MAMMAL PROTECTION ACT

Section 101(a)(5)(D) of the MMPA directs the Secretary of Commerce to authorize, upon request, the incidental, but not intentional, taking by harassment of small numbers of marine mammals of a species or population stock, for periods of not more than one year, by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specific geographic region if certain findings are made and a *Federal Register* notice of a proposed authorization is provided to the public for review.

Section 101(a)(5)(D) of the MMPA established an expedited process by which U.S. citizens can apply for an authorization to incidentally take small numbers of marine mammals by

harassment. Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as:

> any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild ["Level A harassment"]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering ["Level B harassment"].

Section 101(a)(5)(D) of the MMPA establishes a 45-day time limit for NMFS' review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Not later than 45 days after the close of the public comment period, if the Secretary of Commerce makes the findings set forth in section 101(a)(5)(D)(i) of the MMPA, the Secretary of Commerce shall issue the authorization with appropriate conditions to meet the requirements of section 101(a)(5)(D)(ii) of the MMPA.

NMFS has promulgated regulations to implement the permit provisions of the MMPA (50 CFR Part 216) and has produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA. Applications for an IHA must be submitted according to regulations at 50 CFR § 216.104.

1.3.4 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Congress defined Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The EFH provisions of the Magnuson-Stevens Act offer resource managers means to accomplish the goal of giving heightened consideration to fish habitat in resource management. NMFS Office of Protected Resources is required to consult with NMFS Office of Habitat Conservation for any action it authorizes (e.g., incidental take), funds, or undertakes, or proposes to authorize, fund, or undertake that may adversely affect EFH. This includes renewals, reviews, or substantial revisions of actions.

NMFS determined that the issuance of IHAs, including any required mitigation or monitoring measures, for the GFNMS' and PISCO's actions would not adversely affect EFH because the activities would take place on shore within the rocky intertidal zone.

2. CHAPTER 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION

The NEPA implementing regulations (40 CFR § 1502.14) and NAO 216-6 provide guidance on the consideration of alternatives to a Federal proposed action and require rigorous exploration and objective evaluation of all reasonable alternatives. Each alternative must be feasible and reasonable in accordance with the implementing regulations (40 CFR §§ 1500-1508). This chapter describes the range of potential actions (alternatives) determined reasonable with respect to achieving the stated purpose and need, as well as alternatives eliminated from detailed study and also summarizes the expected consequences and any related mitigation for each alternative.

This EA analyzes two alternatives: (1) the No Action Alternative; and (2) the issuance of IHAs for the take of marine mammals by Level B behavioral harassment, incidental to the GFNMS' activities in the Gulf of the Farallones National Marine Sanctuary and PISCO's activities along the Oregon and California coasts. This is in compliance with the MMPA, which sets forth specific standards (i.e., mitigation to effect the least practicable impact, no unmitigable adverse impact on subsistence uses, and negligible impact) that must be met in order for NMFS to issue an IHA.

NMFS' proposed action (preferred) alternative represents the activities proposed by the applicants for the IHAs, along with required monitoring and mitigation measures that would minimize potential adverse environmental impacts.

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, NMFS would not issue IHAs to the GFNMS and PISCO for the taking, by Level B harassment, of small numbers of marine mammals, incidental to the rocky intertidal monitoring. However, NMFS does not have authority to permit or prohibit the monitoring surveys themselves. The possible consequences of not authorizing incidental take are (1) the entity conducting the activity may be in violation of the MMPA if take occurs, (2) mitigation and monitoring measures cannot be required by NMFS, (3) mitigation measures may or may not be performed voluntarily by the applicant, and (4) the applicant may choose not to conduct the activity.

If IHAs are not issued, the GFNMS and PISCO could decide either to cancel the monitoring surveys or to continue the proposed activity. If the latter decision was made, the GFNMS and PISCO could independently implement mitigation and monitoring measures, which potentially would result in the same environmental impacts as the preferred alternative; however, the GFNMS and PISCO would be proceeding without authorization from NMFS pursuant to the MMPA. If the applicants did not implement mitigation measures during the proposed activities, takes of marine mammals by harassment (and potentially by injury or mortality) could occur if the activities were conducted when marine mammals were present. Although the No Action Alternative would not meet NMFS' purpose and need to allow incidental takings of marine mammals under certain conditions, CEQ regulations require consideration and analysis of a No Action Alternative for the purposes of presenting a comparative analysis to the action alternatives.

2.2 ALTERNATIVE 2 – PROPOSED ACTION (PREFERRED)

The Proposed Action is the Preferred Alternative. Under this alternative, NMFS would issue an IHA to the GFNMS allowing the take, by Level B harassment, of five marine mammal species, incidental to the rocky intertidal monitoring surveys in the Gulf of the Farallones National Marine Sanctuary with the mitigation, monitoring, and reporting conditions contained within the GFNMS' IHA application and NMFS' proposed IHA *Federal Register* notice. Additionally, NMFS would issue an IHA to PISCO allowing the take, by Level B harassment, of three marine mammal species, incidental to the rocky intertidal monitoring surveys along the Oregon and California coasts with the mitigation, monitoring, and reporting conditions contained within PISCO's IHA application and NMFS' proposed IHA *Federal Register* notice. Accordingly, the Proposed Action would satisfy the purpose and need of the NMFS MMPA action – issuance of IHAs, along with required mitigation and monitoring measures – and would enable the GFNMS and PISCO to comply with the MMPA.

2.2.1 GFNMS ACTIVITIES AND RESEARCH METHODS

NMFS' proposed IHA *Federal Register* notice (77 FR 50990, August 23, 2012) and GFNMS' IHA application (Roletto and Kimura, 2012) describe the survey techniques to be used during the rocky intertidal monitoring and that information is incorporated herein by reference. Non-destructive methods would occur in low, middle, and upper elevation tidal zones marked by white epoxy pads in the quadrat corners. There are three to four permanent quadrat sites in each tidal zone. Fifty randomly selected points within each permanent and random quadrat are sampled, as well as three to four random quadrats that are sampled at each site. Researchers follow the methods specifically laid out in Foster et al. (1991) and Dethier et al. (1993). Specific actions taken by the researchers include sampling through photographic documentation and shore walks, which will be conducted for four to eight days during daylight, minus low tides in November and February 2012-2013. Marine mammal harassment may result from the presence of survey personnel near pinniped haulout sites and approach of survey personnel towards hauled out pinnpeds.

2.2.2 PISCO ACTIVITIES AND RESEARCH METHODS

NMFS' proposed IHA *Federal Register* notice (77 FR 64320, October 19, 2012) and PISCO's IHA application (PISCO, 2012) describe the survey techniques to be used during the marine research programs, including the rocky intertidal monitoring surveys and that information is incorporated herein by reference. Non-destructive survey methods include the use of permanent photoplot quadrats (i.e., marked off areas to conduct photographic sampling), which target specific algal and invertebrate assemblages, photographic documentation, and shore walks. Sites are sampled over one day (typically four to six hours) one to three times annually. Exact sampling sites for 2012-2013 are noted in PISCO's IHA application (PISCO, 2012). Marine mammal harassment may result from the presence of survey personnel near pinniped haulout sites and approach of survey personnel toward hauled out pinnipeds.

2.2.3 MITIGATION AND MONITORING MEASURES

Based on NMFS' analysis of the proposed action and comments received during the 30-day public comment periods on the *Federal Register* notices, the following mitigation and monitoring measures would be in place to reduce the potential for marine mammal disturbance: (1) conducting slow movements and staying close to the ground to prevent or minimize stampeding; (2) avoiding loud noises (i.e., using hushed voices); (3) vacating the area as soon as sampling of the site is completed; (4) monitoring the offshore area for predators (such as killer whales and white sharks) and avoid flushing of pinnipeds when predators are observed in nearshore waters; and (5) using binoculars to detect pinnipeds before close approach to avoid being seen by animals. Much of the sampling would occur outside of the pupping season for many pinniped species. However, on occasions when sampling could occur during pupping season, intentional flushing of animals would not be allowed if dependent pups are present. Because several entities conduct activities on the South Farallon Islands (the location of GFNMS' activities), GFNMS personnel will coordinate sampling efforts with other permitted activities (such as those conducted by PRBO Conservation Science and the U.S. Fish and Wildlife Service [USFWS]). PISCO would not approach or sample any sites where Steller sea lions are present and would return to sample those sites at a later date.

The methodologies and actions noted here would be utilized and included as mitigation measures in any issued IHA to ensure that impacts to marine mammals are mitigated to the lowest level practicable. The primary method of mitigating the risk of disturbance to pinnipeds, which would be in use at all times, is the selection of judicious routes of approach to abalone study sites, avoiding close contact with pinnipeds hauled out on shore, and the use of extreme caution upon approach. In no case will marine mammals be deliberately approached by abalone survey personnel, and in all cases every possible measure will be taken to select a pathway of approach to study sites that minimizes the number of marine mammals potentially harassed. In general, researchers would stay inshore of pinnipeds whenever possible to allow maximum escape to the ocean. Each visit to a given study site would last for approximately four to six hours, after which the site is vacated and can be re-occupied by any marine mammals that may have been disturbed by the presence of abalone researchers. By arriving before low tide, worker presence would tend to encourage pinnipeds to move to other areas for the day before they haul out and settle onto rocks at low tide.

During both projects, researchers would record information about marine mammals present in the vicinity of the rocky intertidal monitoring survey sites. Recorded information would include species and numbers (by age and sex when possible), numbers and types of disturbance reactions noted (if any), and physical and biological conditions at the survey sites. Information about injured or dead marine mammals will be reported to NMFS, and activities will be suspended if the research may be linked to the injury or death.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

NMFS considered whether other alternatives could meet the purpose and need. An alternative that would allow for the issuance of an IHA with no required mitigation or monitoring was

considered but eliminated from consideration, as it would neither be in compliance with the MMPA nor satisfy the purpose and need. For that reason, this alternative is not analyzed further in this document.

3. CHAPTER 3 – AFFECTED ENVIRONMENT

A summary of the physical and biological environment of the project areas were included in the GFNMS' IHA application (Sections 3, 4, and 9) and our notice of proposed IHA (Roletto and Kimura, 2012; 77 FR 50990, August 23, 2012) and in PISCO's IHA application (Sections 3, 4, and 9) and our notice of proposed IHA (PISCO, 2012; 77 FR 64320, October 19, 2012). In addition to the marine mammal stocks and species that are the subject of the IHA requests, a number of sea birds may be found in the action area. In the summer, over 200,000 individuals of 13 seabird species nest on the islands and adjacent areas: Leach's storm-petrel, ashy storm-petrel, fork-tailed storm-petrel, double-crested cormorant, Brandt's cormorant, pelagic cormorant, black oystercatcher, western gull, common murre, pigeon guillemot, Cassin's auklet, rhinoceros auklet, and tufted puffin. However, much of GFNMS' proposed activities would occur during winter months when the least number of birds are found on the islands. Because activities will occur on land, fish and other species will not be impacted. The project area encompasses sites along the U.S. Oregon and California coasts and offshore islands. Additionally, given the nature of NMFS' proposed action (i.e., the issuance of take of marine mammals incidental to rocky intertidal monitoring surveys), no impacts to water and air quality or to the social or economic environments (i.e., cultural resources, human health and safety) are anticipated to occur. Certain sampling sites are not open to public access, and researchers involved in the activities would take the necessary precautions to ensure their safety. Additionally, there are no relevant subsistence uses of marine mammals in the proposed action area; therefore, issuance of separate IHAs to GFNMS and PISCO would have no effects on subsistence uses of marine mammals.

3.1 PHYSICAL ENVIRONMENT

GFNMS' surveys would be conducted in the South Farallon Islands, a chain of seven islands approximately 30 miles (48 kilometers) west of San Francisco. GFNMS survey sites are located on Southeast Farallon and Maintop (aka West End) Islands. The land of the islands above the mean high tide mark is designated as the Farallon National Wildlife Refuge. The Farallones are a rocky, granitic formation that is part of the Farallon Ridge. The terrain is rugged with shallow soils scattered on some of the South Farallon Islands and vegetation is dominated by Farallon weed. All of PISCO's proposed survey sites occur along the mainland coast of Oregon and California with some sites inside the boundaries of the Monterey Bay and Gulf of the Farallones National Marine Sanctuaries. The authorized take of marine mammals or mitigation measures required by the IHAs would not affect the physical environment, and therefore it will not be described further.

3.2 BIOLOGICAL ENVIRONMENT

The Farallon National Wildlife Refuge was established in 1909 specifically to protect sea birds and pinnipeds, and it currently sustains the largest sea bird breeding colony south of Alaska, including 30 percent of California's nesting sea birds. The majority of the islands' perimeters are considered potential haul-outs for pinnipeds. Designated in 1981, GFNMS spans 1,279-square-miles just north and west of San Francisco Bay, and protects open ocean, nearshore tidal flats, rocky intertidal areas, estuarine wetlands, subtidal reefs, and coastal

beaches within its boundaries. Designated in 1992, the Monterey Bay National Marine Sanctuary encompasses a shoreline length of 276 miles and 6,094-square-miles of ocean, extending an average distance of 30 miles from shore and stretches from Marin to Cambria. NMFS' limited action of issuing IHAs would allow for the harassment of marine mammals incidental to rocky intertidal monitoring surveys and, therefore, is the focus of this section. Critical habitat has been defined for Steller sea lions as a 20 nautical mile buffer around all major haul-outs and rookeries, as well as associated terrestrial, air, and aquatic zones, which includes Southeast Farallon Island. Human presence or elevated sound levels may temporarily make pinniped haul-outs undesirable to the animals, but no significant or permanent impacts to marine mammal habitat are expected to result from the proposed action.

3.2.1 MARINE MAMMALS

There are five marine mammal species with confirmed or potential occurrence in the proposed project areas. Northern elephant seals (*Mirounga angustirostris*), harbor seals (*Phoca vitulina richardii*), Steller sea lions (*Eumetopias jubatus*), California sea lions (*Zalophus californianus*), and Northern fur seals (*Callorhinus ursinus*) all use the islands and parts of the mainland coasts as haul-outs. The eastern U.S. stock of Steller sea lion is listed as a threatened species under the ESA and is considered depleted under the MMPA. All five of these species may be impacted by GFNMS' proposed activities. However, only northern elephant seals, harbor seals, and California sea lions are anticipated to occur in and potentially be affected by PISCO's proposed activities. Information on these species was provided in the IHA applications (Roletto and Kimura, 2012; PISCO, 2012) and our proposed IHA notices (77 FR 50990, August 23, 2012; 77 FR 64320, October 19, 2012) and is incorporated here by reference.

Northern elephant seals range in the eastern and central North Pacific Ocean, from as far north as Alaska and as far south as Mexico, spending much of the year in the ocean. Northern elephant seals breed and give birth in California (U.S.) and Baja California (Mexico), primarily on offshore islands from December to March. California sea lion breeding areas are on islands located in southern California, in western Baja California, Mexico, and the Gulf of California. Rookery sites in southern California are limited to the San Miguel Islands and the southerly Channel Islands of San Nicolas, Santa Barbara, and San Clemente (none of which are proposed to be sampled by PISCO or GFNMS). Pacific harbor seals inhabit near-shore coastal and estuarine areas from Baja California, Mexico, to the Pribilof Islands in Alaska. In California, over 500 harbor seal haulout sites are widely distributed along the mainland and offshore islands and include rocky shores, beaches, and intertidal sandbars. Harbor seals mate at sea, and females give birth during the spring and summer. Steller sea lions range along the North Pacific Rim from northern Japan to California, with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands, respectively. The eastern stock of Steller sea lions breeds on rookeries located in southeast Alaska, British Columbia, Oregon, and California. The species typically gives birth from May through July. Adult female and juvenile northern fur seals migrate to the central California area (and Oregon and Washington) from rookeries on San Miguel Island in the Southern California Bight and from the Pribilof Islands in the Bering Sea. With the exception of northern elephant seals, GFNMS' proposed activities would occur outside of the

pupping seasons for the pinniped species likely to occur in the proposed action area. Additionally, certain portions of PISCO's activities will occur outside of pupping seasons. As noted in Section 2.2.3, measures will be taken to avoid dependent pups. Pinnipeds likely to be affected by the rocky intertidal monitoring surveys are those that are hauled out on land at or near the survey sites.

4. CHAPTER 4 –ENVIRONMENTAL CONSEQUENCES

NMFS has evaluated the potential impacts of the GFNMS' and PISCO's proposed actions in order to determine whether to authorize incidental take of marine mammals under the MMPA. NMFS' evaluation indicates that any direct or indirect effects of the action would not result in a substantial impact to living marine resources or their habitats and would not have any adverse impacts on biodiversity or ecosystem function. Effects of the proposed action are considered to be short-term, temporary in nature, and negligible, and unlikely to affect normal ecosystem function or predator/prey relationships; therefore, there would not be a substantial impact on marine life biodiversity or on the normal function of the near shore marine environment. NMFS has determined that appropriate mitigation measures would be in place to minimize impacts to marine mammals and other marine species.

The presence of the researchers in the rocky intertidal zone or along access ways to rocky intertidal sites is the activity with the greatest likelihood to impact marine mammals, and these impacts are expected to be temporary in nature, negligible in intensity, and would not result in substantial impacts to marine mammals or to their role in the ecosystem. NMFS anticipates, and would authorize, the incidental Level B harassment only of small numbers of marine mammals, in the form of temporary behavioral disturbance. NMFS does not anticipate that take by injury (Level A harassment), serious injury, or mortality would occur and expects that harassment takes would be at the lowest level practicable due to the incorporation of the mitigation measures required by the proposed IHA and analyzed in this EA. Level B harassment is not expected to significantly affect biodiversity or ecosystem function.

4.1 EFFECTS OF ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, NMFS would not issue IHAs to the GFNMS and PISCO for their proposed actions. In this case, the entities would decide whether or not to continue with the rocky intertidal monitoring. If the GFNMS and PISCO chose not to conduct the activity, then there would be no effects to marine mammals. Conducting the activity without an MMPA authorization (i.e., an IHA) could result in a violation of Federal law if marine mammal takes occur.

If the GFNMS and PISCO decided to conduct some or all of the activities without implementing any mitigation measures, and if activities occur when marine mammals are present in the action area, there is the potential for unauthorized and increased harassment of marine mammals. The presence of researchers has the potential to cause behavioral harassment of marine mammals in the action area, while some marine mammals may avoid the area altogether. If no mitigation or monitoring measures are implemented, harassment may occur to a higher degree. For instance, instead of animals simply becoming alert or changing the direction of their movement, they could completely flush from a haul-out or form a stampede. Without monitoring measures in place, unexpected marine mammal reactions to the surveys may go unseen. If the GFNMS and PISCO decided to implement mitigation measures similar to those described in section 2.2.2, then the impacts would most likely be similar to those described for Alternative 2 below.

4.2 EFFECTS OF ALTERNATIVE 2 – PREFERRED ALTERNATIVE

The proposed IHA *Federal Register* notices, incorporated by reference (77 FR 50990, August 23, 2012; 77 FR 64320, October 19, 2012), describe in detail the potential effects of the rocky intertidal monitoring on marine mammals. The Biological Opinion, incorporated here by reference, also analyzes the potential effects of the proposed action on ESA-listed species (NMFS, 2012). In summary, NMFS expects any impacts to be temporary, behavioral harassment (such as avoidance or alteration or behavior). Incidental harassment may result if hauled out animals are disturbed by the presence or approach of researchers. Disturbance may result in behavioral reactions ranging from an animal simply becoming alert (e.g., turning the head, assuming a more upright posture) to flushing from the haul-out site into the water. Pinnipeds are unlikely to incur significant impacts to their survival because potential harassment would be sporadic and of low intensity. Additionally, many of the surveys will occur outside of the normal pupping season for most of the potentially affected species. Hearing impairment of marine mammals is not anticipated from any of the activities. GFNMS will not utilize any motorized equipment. While PISCO may need to install bolts at some sites with a battery powered hammer drill, the drill does not produce noticeable noise. Researchers have never observed an instance where near-by or offshore marine mammals were disturbed by it. The sound levels produced by the hammer drill are not loud enough to cause hearing impairment in pinnipeds. While the activities may result in short-term behavioral effects of pinnipeds, no long-term displacement of marine mammals, endangered species, or their prey is expected as a result of the proposed action.

In analyzing the effects of the preferred alternative, we considered the mitigation and monitoring measures detailed in section 2.2.3:

(1) conducting slow movements and staying close to the ground to prevent or minimize stampeding;
(2) avoiding loud noises (i.e., using hushed voices);
(3) vacating the area as soon as sampling of the site is completed;
(4) monitoring the offshore area for predators (such as killer whales and white sharks) and avoid flushing of pinnipeds when predators are observed in nearshore waters;
(5) using binoculars to detect pinnipeds before close approach to avoid being seen by animals; and
(6) utilizing observers to record presence and reactions of pinnipeds.

Additionally, PISCO will not sample a site if Steller sea lions are present, and neither entity will flush a site if dependent pups are present. Inclusion of these monitoring and mitigation measures is anticipated to minimize and/or avoid impacts to marine resources. Any unavoidable impacts to marine mammals are expected to be short-term, localized changes in behavior (such as moving in a different direction). At worst, effects on marine mammals may be interpreted as falling within the MMPA definition of "Level B behavioral harassment." Under the proposed action, NMFS expects no long-term or substantial adverse effects on marine mammals, the populations to which they belong, or on their habitats.

NMFS does not anticipate that take by injury (Level A harassment), serious injury, or mortality would occur and expects that harassment takes would be at the lowest level practicable due to the

incorporation of the above mitigation and monitoring measures, nor is take by injury, serious injury, or mortality proposed to be authorized in the IHAs (if issued). GFNMS and PISCO will not conducting monitoring surveys at the same sites. Additionally, there is only the potential for temporal overlap during two months of the year (i.e., November and February), as GFNMS will only conduct research twice a year.

4.2.1 COMPLIANCE WITH NECESSARY LAWS – NECESSARY FEDERAL PERMITS

NMFS has determined that the IHAs are consistent with the applicable requirements of the MMPA, ESA, and NMFS' implementing regulations. The applicants are responsible for complying with all other applicable laws and regulations.

4.2.2 UNAVOIDABLE ADVERSE IMPACTS

A summary of unavoidable adverse impacts to marine mammals occurring in the proposed action area and their habitats was summarized earlier in this chapter and detailed in NMFS' notices of proposed IHA (77 FR 50990, August 23, 2012; 77 FR 64320, October 19, 2012). The presence of survey personnel has the potential to cause alert or startle reactions in hauled out pinnipeds.

NMFS does not expect the GFNMS' or PISCO's activities to have adverse consequences on the viability of marine mammals in the proposed project area. Further, NMFS does not expect any changes to annual rates of recruitment or survival of marine mammals exposed to the presence of the survey personnel. Activities only occur for a few hours at a time several times of year. For several of the species, researchers conduct activities outside of the pupping season. In cases where activities would occur during the pupping season of a pinniped species, activities will be re-directed or moved if dependent pups are found at the sampling site. Numbers of individuals of all species taken by harassment are expected to be small (relative to species or stock abundance), and the rocky intertidal monitoring would have a negligible impact on the affected species or stocks of marine mammals. The MMPA requirement of ensuring the proposed action has no unmitigable adverse impact to subsistence uses does not apply here because of the location of the proposed activity (i.e., the California and Oregon coasts and islands) because subsistence uses of marine mammals are not permitted in the region.

4.3 ESTIMATION OF TAKE

The marine mammal species NMFS determined likely to be taken by Level B harassment incidental to PISCO's rocky intertidal surveys are harbor seals, California sea lions, and northern elephant seals. The marine mammal species NMFS determined likely to be taken by Level B harassment incidental to GFNMS' rocky intertidal surveys are harbor seals, California sea lions, northern elephant seals, northern fur seals, and Steller sea lions. Any takes are most likely to result from the presence of researchers.

For purposes of evaluating the potential significance of the takes by harassment, an estimation of the number of potential takes is used here to discuss in terms of the populations present. Note that the specific number of takes that are considered for authorization is developed via the MMPA process, and the analysis in this EA provides a summary of the anticipated numbers that

would be authorized to give a relative sense of the nature of impact of the proposed action. PISCO provisionally estimates that the following numbers of pinnipeds may be taken by Level B harassment: 440 harbor seals; 52 California sea lions; and 30 northern elephant seals. GFNMS provisionally estimates that the following numbers of pinnipeds may be taken by Level B harassment: 175 harbor seals; 6,850 California sea lions; 225 northern elephant seals; 95 Steller sea lions; and 20 northern fur seals. The animals affected may be the same individual animals or may be different individuals, depending on site fidelity.

With the incorporation of mitigation measures discussed earlier in this document, NMFS expects that only Level B incidental harassment may occur as a result of the proposed activities and that these events will result in no detectable impact on marine mammal species or stocks or on their habitats.

4.4 CUMULATIVE EFFECTS

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR§1508.7). Cumulative impacts may occur when there is a relationship between a proposed action and other actions expected to occur in a similar location or during a similar time period, or when past or future actions may result in impacts that would additively or synergistically affect a resource of concern. These relationships may or may not be obvious. Actions overlapping within close proximity to the proposed action can reasonably be expected to have more potential for cumulative effects on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally will tend to offer a higher potential for cumulative effects.

Actions that might permanently remove a resource would be expected to have a potential to act additively or synergistically if they affected the same population, even if the effects were separated geographically or temporally. Note that the proposed action considered here would not be expected to result in the removal of individual cetaceans or pinnipeds from the population or to result in harassment levels that might cause animals to permanently abandon preferred feeding areas or other habitat locations, so concerns related to removal of viable members of the populations are not implicated by the proposed action. This cumulative effects analysis considers these potential impacts, but more appropriately focuses on those activities that may temporally or geographically overlap with the proposed activity such that repeat harassment effects warrant consideration for potential cumulative impacts to the affected five marine mammal species and their habitats.

Human activities in the Farallon National Wildlife Refuge are limited to research personnel. All of the islands are closed to public access due to the presence of nesting sea birds, pinnipeds, and other wildlife. There are also no docking facilities at any island and vessel traffic and aircraft proximity is restricted. The GFNMS' proposed action is unlikely to add an increment of disturbance that would cumulatively, when combined with other research activities on the islands, result in significant adverse impacts to marine mammals. We have also received two other IHA applications for activities in the Southeast Farallon Islands. The first application is from PRBO Conservation Science to take marine mammals incidental to seabird and pinniped

research activities. The second application is from the USFWS to take marine mammals incidental to a gull hazing research trial. Both of these applications request take of small numbers of marine mammals inside the Gulf of the Farallones National Marine Sanctuary. It is unlikely that these activities and the proposed action of this EA (i.e., issuance of IHAs to GFNMS and PISCO) would result in additional impacts since activities are coordinated amongst research entities. The environmental effects of the USFWS' and PRBO Conservation Science's proposed actions are analyzed in separate NEPA documents and any resulting IHAs would include mitigation and monitoring measures to ensure the least practicable impact. Any other future authorizations would have to undergo the same permitting process and would take the GFNMS' and PISCO's proposed actions into consideration when addressing cumulative effects.

PISCO's activities outside of the sanctuary boundaries include sites along the Oregon and California coasts. Where those activities overlap with other similar research, PISCO coordinates with those entities to reduce impacts. Additionally, none of the sites between GFNMS' and PISCO's surveys overlap. Both groups are on location for extremely short periods at a time (4-6 hours per survey) and do not conduct surveys year round. Each site is only sampled a few times per year (i.e., twice per year for GFNMS and one to three times per year for PISCO). While some pinnipeds show site fidelity, it is not likely that the same animals will be impacted numerous times.

Other past and present actions in the proposed project area include scientific research activities (directed at both marine mammal and non-marine mammal species), construction projects, commercial and recreational fishing, marine transportation, marine pollution, and military-readiness activities. Such actions also have the potential to take marine mammals. Take of marine mammals through many of these other activities have been authorized through required MMPA permits and authorizations. Those permits and authorizations all included mitigation measures to lessen the impacts on marine mammal species. Monitoring reports indicate that there have been no significant effects to marine mammals from those activities for which MMPA authorizations were issued. Additional information beyond this brief summary can be found in other recent NEPA documents and is incorporated herein by reference: EA on the *Issuance of an Incidental Harassment Authorization to America's Cup Event Authority and Port of San Francisco to Take Marine Mammals by Harassment Incidental to Construction and Race Event Activities for the 34th America's Cup in San Francisco Bay, California* (NMFS, 2012); and *Final EA on the Issuance of Regulations to Take Marine Mammals by Harassment Incidental to U.S. Navy Missile Launch Activities at San Nicolas Island, California* (NMFS, 2009).

NMFS' proposed action of issuing two separate IHAs for the incidental take of marine mammals by Level B harassment along the U.S. Pacific coast and on the Southeast Farallon Islands, relative to the two other IHA applications for activities in the Southeast Farallon Islands and other past and present activities in the region, is expected to result in minimal cumulative impacts to marine species in the area. This limited action and any temporary, behavioral effects that may result from the GFNMS' and PISCO's proposed actions, are not expected to contribute substantially to other cumulative impacts from activities in the area.

4.5 CONCLUSION

The inclusion of the mitigation and monitoring requirements in the IHAs, as described in the Preferred Alternative, would ensure that the GFNMS' and PISCO's proposed actions and

mitigation measures under Alternative 2 (Preferred Alternative) are sufficient to minimize any potential adverse impacts to the human environment, particularly marine mammal species or stocks and their habitat. With the inclusion of the required mitigation and monitoring requirements, NMFS has determined that the proposed action, and NMFS' proposed issuance of IHAs to the GFNMS and PISCO, would result at worst in a temporary modification of behavior (Level B harassment) of some individuals of five and three species of marine mammals, respectively. In addition, no take by injury, serious injury, and/or mortality is anticipated nor would it be authorized. Therefore, NMFS has determined that the proposed action would only result in minimal impacts to the biological environment. Additionally, as discussed earlier in this EA, no impacts are anticipated to occur on the physical or social and economic environments. Based on this analysis, NMFS determined that impacts would not cause significant impacts to the human environment.

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